Avenger planet: Is the COVID-19 pandemic Mother Nature's response to human transgression?

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Highlight: What planet are we on?

Body

Link to Image

OR-11, a male pup (born spring 2011) from the Walla Walla pack, waking up from anesthesia after being radio-collared on Oct. 25, 2011. It was the second wolf in the pack to be collared. Photo courtesy of ODFW.

As the coronavirus sweeps across the planet, leaving death and mayhem in its wake, many theories are being expounded to explain its ferocity. One, widely circulated within right-wing conspiracy circles, is that it originated as a biological weapon developed at a secret Chinese military lab in the city of Wuhan that somehow (perhaps intentionally?) escaped into the civilian population. Although that "theory" has been thoroughly debunked, President Trump and his acolytes continue to call Covid-19 the China Virus, the Wuhan Virus, or even the " Kung Flu," claiming its global spread was the result of an inept and secretive Chinese government response. Scientists, by and large, believe the virus originated in bats and was transmitted to humans by wildlife sold at a Wuhan seafood market. But perhaps there's another far more ominous possibility to consider: that this is one of Mother Nature's ways of resisting humanity's assault on her essential life systems.

Let's be clear: this pandemic is a world-shattering phenomenon of massive proportions. Not only has it infected hundreds of thousands of people across the planet, killing more than 40,000 of them, but it's brought the global economy to a virtual stand-still, potentially crushing millions of businesses, large and small, while putting tens of millions, or possibly hundreds of millions, of people out of work. In the past, disasters of this magnitude have toppled empires, triggered mass rebellions, and caused widespread famine and starvation. This upheaval, too, will produce widespread misery and imperil the survival of numerous governments.

Understandably, our forebears came to view such calamities as manifestations of the fury of gods incensed by human disrespect for and mistreatment of their universe, the natural world. Today, educated people generally dismiss such notions, but scientists have recently been discovering that human impacts on the environment, especially the burning of fossil fuels, are producing feedback loops causing increasingly severe harm to communities across the globe, in the form of extreme storms, persistent droughts, massive wildfires, and recurring heat waves of an ever deadlier sort.

Climate scientists also speak of "singularities," "non-linear events," and "tipping points" - the sudden and irreversible collapse of vital ecological systems with far-ranging, highly destructive consequences for humanity. Evidence for such tipping points is growing - for example in the unexpectedly rapid melting of the Arctic icecap. In that context, a question naturally arises: Is the coronavirus a stand-alone event, independent of any other mega-trends, or does it represent some sort of catastrophic tipping point?

It will be some time before scientists can answer that question with any certainty. There are, however, good reasons to believe that this might be the case and, if so, perhaps it's high time humanity reconsiders its relationship with nature.

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Humans vs. Nature

It's common to think of human history as an evolutionary process in which broad, long-studied trends like colonialism and post-colonialism have largely shaped human affairs. When sudden disruptions have occurred, they are usually attributed to, say, the collapse of a long-lasting dynasty or the rise of an ambitious new ruler. But the course of human affairs has also been altered - often in even more dramatic ways - by natural occurrences, ranging from prolonged droughts to catastrophic volcanic activity to (yes, of course) plagues and pandemics. The ancient Minoan civilization of the eastern Mediterranean, for example, is widely believed to have disintegrated following a powerful volcanic eruption on the island of Thera (now known as Santorini) in the 17th century BCE. Archaeological evidence further suggeststhat other once-thriving cultures were similarly undermined or even extinguished by natural disasters.

It's hardly surprising that the survivors of such catastrophes often attributed their misfortunes to the anger of various gods over human excesses and depredations. In the ancient world, sacrifices - even human ones - were considered a necessity to appease such angry spirits. At the onset of the Trojan War, for example, the Greek goddess Artemis, protectress of wild animals, the wilderness, and the moon, stilled the winds needed to propelthe Greek fleet to Troy because Agamemnon, its commander, had killed a sacred deer. To appease her and restore the essential winds, Agamemnon felt obliged - or so the poet Homer tells us - to sacrifice his own daughter Iphigenia (the plot line for many a Greek and modern tragedy).

In more recent times, educated people have generally seen coronavirus-style calamities as either inexplicable acts of God or as explicable, if surprising, natural events. With the Enlightenment and the Industrial Revolution in Europe, moreover, many influential thinkers came to believe that humans could use science and technology to overpower nature and so harness it to the will of humanity. The seventeenth-century French mathematician Ren Descartes, for example, wrote of employing science and human knowledge so that "we can... render ourselves the masters and possessors of nature."

This outlook undergirded the view, common in the last three centuries, that the Earthwas "virgin" territory (especially when it came to the colonial possessions of the major powers) and so fully open to exploitation by human entrepreneurs. This led to the deforestation of vast areas, as well as the extinction or near-extinction of many animals, and in more recent times, to the plunder of underground mineral and energy deposits.

As it happened, though, this planet proved anything but an impotent victim of colonization and exploitation. Human mistreatment of the natural environment has turned out to have distinctly painful boomerang effects. The ongoing destruction of the Amazon rain forest, for example, is altering Brazil's climate, raising temperatures and reducing rainfall in significant ways, with painful consequences for local farmers and even more distant urban dwellers. (And the release of vast quantities of carbon dioxide, thanks to increasingly massive forest fires, will only increase the paceof climate change globally.) Similarly, the technique of hydraulic fracking, used to extract oil and natural gas trapped in underground shale deposits, can triggerearthquakes that damage aboveground structures and endanger human life. In so many ways like these, Mother Nature strikes back when her vital organs suffer harm.

This interplay between human activity and planetary behavior has led some analysts to rethink our relationship with the natural world. They have reconceptualized the Earth as a complex matrix of living and inorganic systems, all (under normal conditions) interacting to maintain a stable balance. When one component of the larger matrix is damaged or destroyed, the others respond in their unique ways in attempting to restore the natural order of things. Originally propounded by the environmental scientist James Lovelock in the 1960s, this notion has often been described as " the Gaia Hypothesis," after the ancient Greek goddess Gaia, the ancestral mother of all life.

Climate tipping points

Posing the ultimate threat to planetary health, climate change - a direct consequence of the human impulse to dump ever more greenhouse gases into the atmosphere, potentially heating the planet to the breaking point - is guaranteed to generate the most brutal of allsuch feedback loops. By emitting ever more carbon dioxide and other

gases, humans are fundamentally alteringplanetary chemistry and posing an almost unimaginable threat to natural ecosystems. Climate-change deniers in the Trumpian mode continue to insist that we can keep doing this with no cost to our way of life. It is, however, becoming increasingly apparent that the more we alter the climate, the more the planet will respond in ways guaranteed to endanger human life and prosperity.

The main engine of climate change is the greenhouse effect, as all those greenhouse gases sent into the atmosphere entrap ever more radiated solar heat from the Earth's surface, raising temperatures worldwide and so altering global climate patterns. Until now, much of this added heat and carbon dioxide has been absorbed by the planet's oceans, resulting in rising water temperatures and the increased acidification of their waters. This, in turn, has already led to, among other deleterious effects, the mass die-off of coral reefs - the preferred habitat of many of the fish species on which large numbers of humans rely for their sustenance and livelihoods. Just as consequential, higher ocean temperatures have provided the excess energy that has fueled many of the most destructive hurricanes of recent times, including Sandy, Harvey, Irma, Maria, Florence, and Dorian.

A warmer atmosphere can also sustain greater accumulations of moisture, making possible the prolonged downpours and catastrophic flooding being experienced in many parts of the world, including the upper Midwest in the United States. In other areas, rainfall is decreasing and heat waves are becoming more frequent and prolonged, resulting in devastating wildfires of the sort witnessed in the American West in recent years and in Australia this year.

In all such ways, Mother Nature, you might say, is striking back. It is, however, the potential for "non-linear" events and "tipping points" that has some climate scientists especially concerned, fearing that we now live on what might be thought of as an avenging planet. While many climate effects, like prolonged heat waves, will become more pronounced over time, other effects, it is now believed, will occur suddenly, with little warning, and could result in large-scale disruptions in human life (as in this coronavirus moment). You might think of this as Mother Nature saying, "Stop! Do not go past this point or there will be dreadful consequences!"

Scientists are understandably cautious in discussing such possibilities, as they are harder to study than linear events like rising world temperatures. But the concern is there. "Large-scale singular events (also called 'tipping points,' or critical thresholds) are abrupt and drastic changes in physical, ecological, or social systems" brought about by the relentless rise in temperatures, noted the U.N.'s Intergovernmental Panel on Climate Change (IPCC) in its comprehensive 2014 assessment of anticipated impacts. Such events, the IPCC pointed out, "pose key risks because of the potential magnitude of the consequences; the rate at which they would occur; and, depending on this rate, the limited ability of society to cope with them."

Six years later, that striking description sounds eerily like the present moment.

Until now, the tipping points of greatest concern to scientists have been the rapid melting of the Greenland and West Antarctic ice sheets. Those two massive reservoirs of ice contain the equivalent of hundreds of thousands of square miles of water. Should they melt ever more quickly with all that water flowing into neighboring oceans, a sea level rise of 20 feet or more can be expected, inundating many of the world's most populous coastal cities and forcing billions of people to relocate.In its 2014 study, the IPCC predicted that this might occur over several centuries, at least offering plenty of time for humans to adapt, but more recent research indicates that those two ice sheets are melting far more rapidly than previously believed - and so a sharp increase in sea levels can be expected well before the end of this century with catastrophic consequences for coastal communities.

The IPCC also identified two other possible tipping points with potentially far-reaching consequences: the die-off of the Amazon rain forest and the melting of the Arctic ice cap. Both are already under way, reducing the survival prospects of flora and fauna in their respective habitats. As these processes gain momentum, entire ecosystems are likely to be obliterated and many species killed off, with drastic consequences for the humans who rely on them in so many ways (from food to pollination chains) for their survival. But as is always the case in such transformations, other species - perhaps insects and microorganisms highly dangerous to humans - could occupythose spaces emptied by extinction.

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Climate change and pandemics

Back in 2014, the IPCC did not identify human pandemics among potential climate-induced tipping points, but it did provide plenty of evidence that climate change would increase the risk of such catastrophes. This is true for several reasons. First, warmer temperatures and more moisture are conducive to the accelerated reproduction of mosquitoes, including those carrying malaria, the zika virus, and other highly infectious diseases. Such conditions were once largely confined to the tropics, but as a result of global warming, formerlytemperate areas are now experiencing more tropical conditions, resulting in the territorial expansion of mosquito breeding grounds. Accordingly, malaria and zika are on the rise in areas that never previously experienced such diseases. Similarly, dengue fever, a mosquito-borne viral disease that infects millions of people every year, is spreading especially quickly due to rising world temperatures.

Combined with mechanized agriculture and deforestation, climate change is also undermining subsistence farming and indigenous lifestyles in many parts of the world, driving millions of impoverished people to already crowded urban centers, where health facilities are often overburdened and the risk of contagion ever greater. "Virtually all the projected growth in populations will occur in urban agglomerations," the IPCC noted then. Adequate sanitation is lacking in many of these cities, particularly in the densely populated shantytowns that often surround them. "About 150 millionpeople currently live in cities affected by chronic water shortages, and by 2050, unless there are rapid improvements in urban environments, the number will rise to almost a billion."

Such newly settled urban dwellers often retain strong ties to family members still in the countryside who, in turn, may come in contact with wild animals carrying deadly viruses. This appears to have been the origin of the West African Ebola epidemic of 2014-2016, which affected tens of thousands of people in Guinea, Liberia, and Sierra Leone. Scientists believe that the Ebola virus (like the coronavirus) originated in bats and was then transmitted to gorillas and other wild animals that coexist with people living on the fringes of tropical forests. Somehow, a human or humans contracted the disease from exposure to such creatures and then transmitted it to visitors from the city who, upon their return, infected many others.

The coronavirus appears to have had somewhat similar origins. In recent years, hundreds of millions of once impoverished rural families moved to burgeoning industrial cities in central and coastal China, including places like Wuhan. Although modern in so many respects, with its subways, skyscrapers, and superhighways, Wuhan also retained vestiges of the countryside, including markets selling wild animals still considered by some inhabitants to be normal parts of their diet. Many of those animals were trucked in from semi-rural areas hostinglarge numbers of bats, the apparent source of both the coronavirus and the Severe Acute Respiratory Syndrome, or SARS, outbreak of 2013, which also arose in China. Scientific research suggests that breeding grounds for bats, like mosquitoes, are expanding significantly as a result of rising world temperatures.

The global coronavirus pandemic is the product of a staggering multitude of factors, including the air links connecting every corner of the planet so intimately and the failure of government officials to move swiftly enough to sever those links. But underlying all of that is the virus itself. Are we, in fact, facilitating the emergence and spread of deadly pathogens like the Ebola virus, SARS, and the coronavirus through deforestation, haphazard urbanization, and the ongoing warming of the planet? It may be too early to answer such a question unequivocally, but the evidence is growing that this is the case. If so, we had better take heed.

Heeding Mother Nature's warning

Suppose this interpretation of the Covid-19 pandemic is correct. Suppose that the coronavirus is nature's warning, its way of telling us that we've gone too far and must alter our behavior lest we risk further contamination. What then?

To adapt a phrase from the Cold War era, what humanity may need to do is institute a new policy of "peaceful coexistence" with Mother Nature. This approach would legitimize the continued presence of large numbers of humans on the planet but require that they respect certain limits in their interactions with its ecosphere. We humans could use our talents and technologies to improve life in areas we've long occupied, but infringement elsewhere

would be heavily restricted. Natural disasters - floods, volcanoes, earthquakes, and the like - would, of course, still occur, but not at a rate exceeding what we experienced in the pre-industrial past.

Implementation of such a strategy would, at the very least, require putting the brakes on climate change as swiftly as possible through the rapid and thorough elimination of human-induced carbon emissions - something that has, in fact, happened in at least a modest way, and however briefly, thanks to this Covid-19 moment. Deforestation would also have to be halted and the world's remaining wilderness areas preserved as is forever. Any further despoliation of the oceans would have to be stopped, including the dumping of wastes, plastics, engine fuel, and runoff pesticides.

The coronavirus may not, in retrospect, prove to be *the* tipping point that upends human civilization as we know it, but it should serve as a warning that we will experience ever more such events in the future as the world heats up. The only way to avert such a catastrophe and assure ourselves that Earth will not become an avenger planet is to heed Mother Nature's warning and cease the further desecration of essential ecosystems.

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